Sanitized Copy Approved for Release 2011/10/19: CIA-RDP80-00809A000600390179-1

CLASSIFICATION

CONFIDENTIAL. CONFIDENTIAL

REPORT

CD 1'0.

CENTRAL INTELLIGENCE AGENCY INFORMATION FROM

FOREIGN DOCUMENTS OR RADIO BROADCASTS

50X1-HUM

COUNTRY

USSR

DATE OF INFORMATION

1950

**SUBJECT** 

Economic; Tachnological - Automobile

industry, carburetors

HOW

PUBLISHED

Monthly periodical

DATE DIST.

30 Apr 1951

WHERE

**PUBLISHED** 

Moscow

NO. OF PAGES

3

DATE

**PUBLISHED** 

Dec 1950

SUPPLEMENT TO

LANGUAGE

Russian

REPORT NO.

THIS IS UNEVALUATED INFORMATION

SOURCE

Avtomobil', No 12, 1950.

## THE SOVIET MKZ-K80 CARBURETOR

V. Panfilov

The new MKZ-K80 carburetor, of original design, is now being installed on the motors of ZIS-150 cars. In most ordinary carburetors, starting, idling, compensating, economizing, and accelerating are performed separately, but in the MKZ-K80, a variable aperture diffusor with a spray nozzle centered between its two vanes performs these functions.

Fuel is fed from the float chamber to the spray nozzle through a pipe with a calibrated opening. Then the throttle valve is in the idling position, the carburetor can be adjusted by increasing the size of the opening between the throttle valve and the wall of the mixing chamber by means of an adjusting scress. At idling, the vanes of the diffusor are pulled together by a spring and rest on stops, which determine the minimum aperture for the passage of air around both sides of the spray nozzle.

As the throttle valve is opened for increased speed, an arrangement of levers spreads the vanes, thus increasing the aperture of the diffusor. This mechanical spreading of the diffusor vanes goes on until the throttle valve has opened 23 degrees, after which the diffusor opening is governed by the mutual action of the force of the inflowing air and the force of the spring holding the vanes together. When the engine is rotating at high speeds, the force of the air current will exceed that of the spring, thus opening the diffusor to its maximum aperture.

To enrich the mixture when the throttle valve is wide open, there is a special mechanical device which decreases the aperture of the diffusor. When the throttle valve is opened wide, a lever arrangement brings the vanes of the diffusor together and thus decreases the air intake. This increases the suction in the diffusor and the flow of fuel from the spray nozzle, thus emriching the mixture. The size of the diffusor aperture under these conditions is adjusted so as to obtain maximum power from the motor. This arrangement does the job of the economizer, which is used in ordinary carburetors.

- i -

CONFIDENTIAL CLASSIFICATION DISTRIBUTION NSRB NAVY STATE APM (

Sanitized Copy Approved for Release 2011/10/19 : CIA-RDP80-00809A000600390179-1

CONFIDENTIAL

ריתוווחיי	THE	TAT.

50X1-HUM

Ordinary carburetors have accelerating pumps which supply the motor with the richer mixture needed for added pickup in passing over to a greater number of revolutions per minute or to increased power, at the instant when the throttle valve is suddenly opened. In the MKZ-K80 carburetor, the variable aperture diffusor does the job of the accelerating pump. When the throttle valve is suddenly opened, the diffusor vanes spread apart momentarily owing to the mechanical action of the lever, and then rapidly draw together again as a result of the action of the contracting spring. The suction at the spray nozzle greatly increases at the instant when the vanes draw together, producing an intensive flow of fuel and thus, the rich mixture needed for rapid pickup. As the number of revolutions per minute of the motor increases, the diffusor vanes gradually open because of the action of the air current. The carburetor feeds a slightly enriched mixture during the whole period of acceleration.

To start the motor, the choke valve is closed entirely, thereby slightly opening the throttle valve by means of a transmitting lever. The aperture between the edge of the throttle valve and the wall of the mixing chamber which gives the best starting performance is 2-2.5 millimeters. Two ribs stamped on the throttle valve facilitate starting.

To prevent the mixture from getting too rich at the first spark with the choke valve fully closed, the choke valve has an automatic valve which opens at the first drop in compressin. After the motor starts, the choke valve must be gradually opened as the motor warms up. It should be fully open by the time the motor is thoroughly warmed up.

The throttle valve, when wide open, is at an angle to the axis of the carburetor, and the axis of the valve is displaced 2 millimeters from the axis of the mixing chamber casing. The mixture tends to close the valve as it flows by, and is prevented from doing so by a spring. A sharp rise in the moment of the mixture may close the throttle valve momentarily. To prevent this, the moment of the spring which prevents the valve from closing should also increase sharply. This is accomplished by a projection on the transmitting lever which does not engage the throttle lever in the open position, but offers resistance to it the closer it approaches the closed position. This spring is adjusted so that it maintains the motor's assigned maximum number of revolutions per minute when a load is suddenly removed from it. The governor is regulated on a special jig. When correctly adjusted, the maximum number of revolutions per minute at full throttle should be between 2,300-2,500.

The MKZ-K80 carburetor consists of three basic parts, the air-inlet casing, the float chamber casing, and the mixing chamber casing (outlet). They are all cast of zinc alloy under pressure, and bolted together.

The basic characteristics of the carburetor are as follows:

Diffusor at idling

13.9-14.3 mm

Diffusor (maximum aperture)

32.0-32.4 mm

Diffusor at full power

27.C-27.2 mm

Output of spray nozzle (discharge of water at 20 deg C with a head of one meter

570-580 cu cm/min

Internal diameter of calibrated outlet from float chamber after setting under under pressure (zapressovka)

2.4 mm

-2-

CONFIDENTIAL

GONFIDENTIAL

Sanitized Copy Approved for Release 2011/10/19: CIA-RDP80-00809A000600390179-1

## CONFIDENTIAL

CONFIDENTIAL

50X1-HUM

Fuel level in the float
chamber (measured from the
upper surface of the carburetor mounting) under a pressure
of 125-170 mm of mercury

38.5-39.5 mm

Wt.of float including arm

14.5-15.7 gr

The use of the NKZ-K80 carburetor on the ZIS-150 car increased the power of the motor 3-5 percent and improved economy of performance 4-6 percent. The maximum torsional moment in the 1,100-1,200 revolutions per minute range increased from 30.5 to 31.0 kilogram-meters.

The MKZ-K81 carburetor, which is identical with the MKZ-K80 except that it does not have a governor, is used on the 7.IS-1.55 bus.

- E N D -

- 3 -

CONFIDENTIAL

CONFIDENTIAL